

EXHIBIT 3

FILED UNDER SEAL

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

WAYMO LLC,)
)
Plaintiff,)
) Case No.
vs.) 3:17-cv-000939-WHA
)
UBER TECHNOLOGIES, INC.;)
OTTOMOTTO LLC; OTTO TRUCKING,)
INC.,)
)
Defendants.)
_____)

*** HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY ***

VIDEOTAPED DEPOSITION OF JAMES HASLIM
San Francisco, California
Wednesday, August 9, 2017
Volume III

Reported by:
CARLA SOARES
CSR No. 5908
Job No. 2675900

Pages 404 - 724

Page 404

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VIDEOTAPED DEPOSITION OF JAMES HASLIM,
Volume III, taken on behalf of Defendants, at 50
California Street, San Francisco, California,
beginning at 9:36 a.m., and ending at 6:09 p.m., on
Wednesday, August 9, 2017, before CARLA SOARES,
Certified Shorthand Reporter No. 5908.

REFERENCED EXHIBITS

(Not Attached)

Exhibit/Page

57 447

109 472

161 579

58 617

456 624

457 627

155 639

512 650

157 713

QUESTIONS NOT ANSWERED PER INSTRUCTION OF COUNSEL

Page/Line

426 3

483 20

662 13

663 11

664 12

1 A Page 1, page 64, page 65, page 88. 09:45:07

2 Q And is there any reason why those
3 particular pages are in front of you today for this
4 deposition?

5 A Not that I'm aware of. 09:45:21

6 Q You have no knowledge of that?

7 A I don't know why they are attached to this
8 stack, specifically.

9 Q And what's the date of the deposition
10 transcript that you have in front of you? 09:45:32

11 A It's dated Tuesday, April 18th, 2017.

12 Q Do you have any understanding as to
13 whether you are here today testifying on behalf of
14 Uber with regards to certain subjects?

15 MR. KIM: And I'll just note for the 09:45:59
16 record that Mr. Haslim is here in his personal
17 capacity and has not been designated as a Rule
18 30(b)(6) witness on any topics in this case.

19 MR. SCHMIDT: I appreciate that
20 representation. 09:46:09

21 Q Can you give your understanding, please?

22 A My understanding is I'm here today to
23 represent my own personal knowledge and not
24 represent the company I work for.

25 Q Do you have any understanding of the fact 09:46:21

Page 422

1 that you have been identified in certain of Uber's 09:46:23
2 responses to Waymo's interrogatories as a person
3 having knowledge on certain subjects?

4 MR. KIM: Objection. Form.

5 THE WITNESS: I believe I have seen a 09:46:40
6 response to an interrogatory where I was named as a
7 person of -- with knowledge on the subject.

8 BY MR. SCHMIDT:

9 Q And what response -- strike that.

10 What interrogatory was that response in 09:46:49
11 regards to?

12 A I don't remember which interrogatory.

13 Q Do you remember the subject matter of the
14 interrogatory?

15 A The subject matter -- 09:46:59

16 MR. KIM: And I'm just going to caution
17 you not to divulge any attorney-client privileged
18 communications. If you can do so, answer the
19 question without doing that, you can answer.

20 THE WITNESS: The document I saw that 09:47:15
21 listed me as a person of knowledge that I can recall
22 addressed some answers I had provided to counsel.

23 MR. KIM: And I'm just going to caution
24 you again not to reveal the substance of any
25 communication. 09:47:35

Page 423

1 THE WITNESS: The document contained 09:47:35
2 information regarding a redesign of certain aspects.
3 BY MR. SCHMIDT:
4 Q What type of information?
5 A The document was addressing a redesign of 09:47:47
6 our laser transmit board.
7 Q And you provided certain information that
8 informed this interrogatory response?
9 A Yes.
10 Q What sort of investigation did you do to 09:48:01
11 provide that information?
12 MR. KIM: Same caution. If you can answer
13 the question without revealing attorney-client
14 privileged communications, you can do so.
15 THE WITNESS: Yes. So investigation would 09:48:11
16 include communicating with co-workers about an
17 intent I had to change the design, how long they
18 thought it would take, and asking them to begin the
19 work.
20 BY MR. SCHMIDT: 09:48:31
21 Q And this was in regards to the redesign of
22 the laser board, you said?
23 A Yes.
24 Q What aspects of the laser board?
25 A The aspects were to move the [REDACTED] 09:48:38

Page 424

1 [REDACTED] 09:48:43
2 [REDACTED]
3 [REDACTED]
4 Q Anything else?
5 A No, that was it. 09:49:03
6 Q What about changing [REDACTED]
7 [REDACTED] Did you have any
8 conversations with your co-workers about that?
9 A Yes. I had e-mail communication with
10 co-workers about that design change as well, and I 09:49:17
11 did not see that aspect in the document you
12 originally referred to that listed me as a
13 knowledgeable person.
14 Q How about any investigation with regards
15 to changing the [REDACTED] 09:49:35
16 [REDACTED] in the Fuji device?
17 A Yes. I e-mail-communicated with a
18 co-worker to find out what it would take to get a
19 [REDACTED] designed.
20 Q And your understanding is your 09:49:52
21 investigation with regards to changing [REDACTED]
22 [REDACTED] in Fuji and changing [REDACTED] did not
23 make it into that interrogatory response, correct?
24 A When I was shown the interrogatory
25 response, the section I was shown did not make 09:50:10

Page 425

1 mention of those other design change aspects. 09:50:16

2 (Question not answered per instruction of counsel):

3 Q Do you have any understanding why?

4 MR. KIM: I'm just going to caution you

5 again not to reveal the substance of any 09:50:24

6 attorney-client privileged communications.

7 THE WITNESS: So I'm reluctant to answer

8 why because I was directly communicating with a

9 lawyer, counsel for us, when he showed me a part of

10 a document. 09:50:42

11 BY MR. SCHMIDT:

12 Q With regards to these two changes that you

13 discussed with co-workers that did not make it into

14 the interrogatory response, was your understanding

15 that these changes were infeasible? 09:50:56

16 MR. KIM: Objection. Form.

17 THE WITNESS: I want you to remind me.

18 One was [REDACTED] and the other was which?

19 BY MR. SCHMIDT:

20 Q Changing [REDACTED] in the 09:51:07
21 system.

22 A No. No. At no point did we discuss it
23 being infeasible.

24 Q Was it your conclusion that these changes
25 would be cost-prohibitive? 09:51:24

Page 426

1 A I did not make any conclusion about 09:51:28
2 something being cost-prohibitive.

3 Q Was it your conclusion that these changes
4 would result in an unacceptable loss of performance?

5 A No. 09:51:48

6 Q Was it your conclusion that these changes
7 would result in any loss of performance?

8 A Yes.

9 Q In what regards?

10 A If I had to direct the redesign of the 09:52:01

11 [REDACTED] in a transmit cavity to increase

12 the [REDACTED] in the transmit cavity, that

13 would likely cause an [REDACTED]

14 [REDACTED] and the lens's central

15 axis. 09:52:29

16 When you begin to [REDACTED]

17 [REDACTED]

18 [REDACTED]

19 [REDACTED]

20 Q Do you have any understanding as to 09:52:44

21 whether or not that conclusion that you arrived at

22 is the reason why this [REDACTED]

23 [REDACTED] was not reflected in Uber's

24 interrogatory response?

25 MR. KIM: Same caution. 09:52:56

1 THE WITNESS: No. 09:53:00

2 BY MR. SCHMIDT:

3 Q [REDACTED]

4 [REDACTED]

5 [REDACTED] 09:53:09

6 MR. KIM: Objection. Form.

7 I caution the witness not to reveal the

8 substance of any attorney-client privileged

9 communications?

10 THE WITNESS: [REDACTED] 09:53:20

11 [REDACTED]

12 [REDACTED].

13 BY MR. SCHMIDT:

14 Q [REDACTED]

15 [REDACTED]? 09:53:30

16 MR. KIM: Objection. Form.

17 THE WITNESS: [REDACTED]

18 [REDACTED]

19 BY MR. SCHMIDT:

20 Q [REDACTED] 09:53:38

21 [REDACTED]

22 [REDACTED]?

23 MR. KIM: Objection. Form.

24 THE WITNESS: [REDACTED]

25 [REDACTED] 09:53:48

Page 428

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[REDACTED]

[REDACTED]

[REDACTED]

BY MR. SCHMIDT:

Q [REDACTED]

[REDACTED]?

MR. KIM: Objection.

THE WITNESS: [REDACTED]

MR. KIM: Form.

THE WITNESS: [REDACTED] 09:54:11

[REDACTED]

[REDACTED].

BY MR. SCHMIDT:

Q What additional information does Uber need
to make a decision on whether they will implement
the change in [REDACTED]?

MR. KIM: Objection. Form.

THE WITNESS: Uber is a corporation with a
management structure I can't represent. So I can
represent the information that I would need to
decide to make that change or propose the change or
recommend the change. And that would be -- I would
need to be told that this was something that we
needed to do.

/// 09:55:03

1 BY MR. SCHMIDT: 09:55:03

2 Q And who would you need to be told that by?

3 A There are a variety of people that could

4 tell me to do this and that would cause me to do

5 this. 09:55:21

6 Q Identify those people, please.

7 A Judge Alsup, Judge Alsup's finding, if it

8 was conveyed through counsel; Eric Meyhofer; or my

9 current boss, Brian Zajac.

10 Q Are you able to quantify the degradation 09:55:50

11 in performance of the Fuji device if this change in

12 the [REDACTED] were implemented?

13 A I believe it is possible to quantify the

14 degradation.

15 Q Have you quantified the degradation? 09:56:06

16 A No.

17 Q You say it's possible. What further

18 analysis would you have to do to provide that

19 quantification?

20 A It would require optical simulations. 09:56:17

21 Q Do you have any current plans to perform

22 those optical simulations?

23 MR. KIM: And I'll just caution you not to

24 reveal the substance of any attorney-client

25 privileged communications. 09:56:29

Page 430

1 THE WITNESS: Okay. I do not, at this 09:56:30
2 time, have a plan to do that quantification.

3 BY MR. SCHMIDT:

4 Q Do you expect to do that quantification
5 between now and trial in this case? 09:56:40

6 MR. KIM: Same caution.

7 THE WITNESS: I don't know.

8 BY MR. SCHMIDT:

9 Q Do you have any projection as to what that
10 quantification analysis might reveal? 09:56:56

11 MR. KIM: Objection. Form. Calls for
12 speculation.

13 THE WITNESS: I cannot estimate, sitting
14 here, the quantity of degradation. But I can only
15 characterize the qualitative nature of what it might 09:57:18
16 include.

17 BY MR. SCHMIDT:

18 Q And what might it include?

19 A It might include a beam whose projected
20 spot shape is larger than it was previous to the 09:57:29
21 change.

22 Q Anything else?

23 A I think that would be sufficient.

24 Correction. I think that, with a
25 simulation of the return path into the sensor's 09:57:47

Page 431

1 detector, together, those two would be sufficient to 09:57:54
2 measure the degradation in performance.

3 Q And a beam whose projected spot shape is
4 larger than it was previous to the change, what
5 impact does that have on the performance of the 09:58:12
6 device?

7 A If the projected spot shape is
8 considerably larger by some amount I'm not going to
9 try to quantify right now, it's possible that the
10 amount of light collected from that beam back onto 09:58:31
11 the detector that it's associated with could be less
12 than the full beam energy received by the sensor.

13 Q And this would result in the device not
14 perceiving certain obstacles that it would otherwise
15 be able to perceive? 09:58:53

16 MR. KIM: Objection. Form. Calls for
17 speculation.

18 MR. SCHMIDT: Counsel, I'd ask to avoid
19 the speaking objections.

20 MR. KIM: I've got a list here of speaking 09:59:02
21 objections made by Quinn attorneys in other
22 depositions, including the last one taken of
23 Mr. Droz.

24 And as I understand it from Mr. Jaffe, the
25 parties do not have a stipulation about the form of 09:59:16

Page 432

1 objections. 09:59:18

2 MR. SCHMIDT: All right. Well, it's not a
3 tit for tat. So I think the objection for calls for
4 speculation is improper.

5 MR. KIM: Well, I'll note that that exact 09:59:28
6 objection was made multiple times by Quinn attorneys
7 in this case, and I'll continue to make objections
8 that I deem to be appropriate.

9 And again, we'll note that there's no
10 stipulation, and the party has made it abundantly 09:59:43
11 clear by Mr. Jaffe.

12 BY MR. SCHMIDT:

13 Q Do you need the question read back for the
14 record?

15 A No, I believe I can answer the question. 09:59:52

16 Q Please do.

17 A So I can testify from my engineering
18 understanding, it's my belief, if that was the case,
19 that the light collected by the detector was less
20 than the full energy, that it would provide -- be 10:00:05
21 provided with -- in the previous design, the net
22 result to the sensor would be that it would have
23 less sensitivity in detecting objects at a further
24 distance or of a darker surface color.

25 Q And why is this a problem? 10:00:24

Page 433

1 MR. KIM: Objection. Form. 10:00:30

2 THE WITNESS: This would be a problem for
3 the sensor we're developing because the sensor we're
4 developing is meant to detect obstacles around a
5 vehicle, and this would limit the ability of our 10:00:45
6 vehicle to sense objects of darker color at farther
7 distance.

8 BY MR. SCHMIDT:

9 Q We've been speaking about changing the
10 [REDACTED] in the Fuji device. I would like now 10:00:57
11 to move to the redesign proposed of [REDACTED]
12 [REDACTED].

13 Did Uber come to the conclusion that the
14 proposed redesign for the [REDACTED]
15 was infeasible? 10:01:14

16 MR. KIM: Objection. Form.

17 THE WITNESS: I can't speak for Uber.

18 BY MR. SCHMIDT:

19 Q Did you come to the conclusion that this
20 design change would be infeasible? 10:01:21

21 A I want to testify that the investigation I
22 did regarding the redesign of the [REDACTED] was in
23 response to an interrogatory request of a vague
24 nature that didn't specify a specific design aspect
25 to be redesigned. 10:01:43

Page 434

1 So I did an investigation to determine 10:01:46
2 time and cost associated with a generic change to
3 [REDACTED]. But without knowing what the change
4 would be, I cannot answer whether I believe it's
5 feasible. 10:02:02

6 Q The investigation that you conducted
7 associated with the generic change to [REDACTED],
8 could you provide me more information on the
9 specific changes that were considered?

10 A Rather than considering a specific design 10:02:21
11 change, we engaged with a third-party vendor, gave
12 them basic requirements for [REDACTED], and asked
13 them to estimate time and cost to design [REDACTED]
14 with no other information than the requirements we
15 provided. 10:02:46

16 Q And where did the requirements that you
17 provide derive from?

18 A Those derived from my understanding of the
19 minimum requirements for [REDACTED] in our system.

20 Q And where did you obtain that 10:03:01
21 understanding of the minimum requirements for [REDACTED]
22 [REDACTED] in your system?

23 A I obtained that from prior knowledge of
24 what [REDACTED] does for a laser diode, and from my
25 knowledge of the equipment we were using to place 10:03:19

1 [REDACTED] onto the laser board. 10:03:23

2 Q So if I understand correctly, the
3 requirements were driven in part by the placement
4 technique that Uber was using for the prior [REDACTED]

5 [REDACTED] correct? 10:03:38

6 MR. KIM: Objection. Form.
7 Mischaracterizes testimony.

8 THE WITNESS: Could you repeat the
9 question?

10 BY MR. SCHMIDT: 10:03:50

11 Q The requirements for the redesigned [REDACTED]
12 [REDACTED] were driven in part by the placement technique
13 that Uber was using for the prior FAC lens, correct?

14 MR. KIM: Same objection.

15 THE WITNESS: I would say that's correct. 10:04:05

16 BY MR. SCHMIDT:

17 Q And the requirements for the redesigned
18 [REDACTED] were driven in part by the performance that
19 Uber had obtained for the prior [REDACTED], correct?

20 MR. KIM: Objection. Form. 10:04:18

21 THE WITNESS: No, I did not consider the
22 performance, as I understand the word to mean, but
23 rather the function of the [REDACTED].

24 BY MR. SCHMIDT:

25 Q So if I understand your testimony, the 10:04:34

Page 436

1 requirements for the redesigned [REDACTED] were driven 10:04:36
2 in part by the function of the prior [REDACTED] that
3 Uber was using, correct?

4 A I believe I answered this more accurately
5 previously when I said the requirements were driven 10:04:54
6 by the function of [REDACTED] from my prior
7 knowledge of what [REDACTED] do for laser diodes.

8 Q Was your knowledge of how [REDACTED]
9 perform informed in any way by the prior [REDACTED]
10 that Uber was using? 10:05:13

11 MR. KIM: Objection. Form.

12 THE WITNESS: Not significantly. I would
13 say when I was exposed to the [REDACTED] and saw its
14 performance, perhaps I had one more data point of
15 how this specific lens performed, but I did not 10:05:30
16 learn anything about the function of an [REDACTED]
17 from the [REDACTED] we previously had.

18 BY MR. SCHMIDT:

19 Q Your answer to my previous question was
20 "Not significantly." 10:05:43

21 Are you leaving open the possibility that
22 your knowledge of [REDACTED] was informed by the [REDACTED]
23 [REDACTED] that Uber was previously using in a
24 nonsignificant manner?

25 MR. KIM: Objection. Form. 10:05:57

Page 437

1 THE WITNESS: I would say yes. Simply to 10:06:01
2 know that this [REDACTED] projects a beam of a certain
3 size at distance is one more piece of information
4 that I didn't have before I came into contact with
5 this [REDACTED]. 10:06:17

6 BY MR. SCHMIDT:

7 Q And that exposure to the [REDACTED] that
8 Uber was previously using was part of the
9 consideration you made in obtaining a quote for a
10 redesigned [REDACTED], correct? 10:06:39

11 MR. KIM: Objection. Form.
12 Mischaracterizes testimony.

13 THE WITNESS: No, I disagree with that. I
14 would say I was able to create a list of
15 requirements, being careful to specify just a 10:06:51
16 minimum set of functionality that this would
17 provide.

18 However, to clarify, my exposure to the
19 [REDACTED] currently used at Uber did inform a
20 requirement to be able to manipulate this with the 10:07:19
21 equipment we were currently using.

22 BY MR. SCHMIDT:

23 Q Did Uber consider the quote that it
24 obtained for the redesigned [REDACTED]
25 cost-prohibitive? 10:07:33

Page 438

1 MR. KIM: Objection. Form. 10:07:35

2 THE WITNESS: Again, I can't answer for
3 Uber. I did not make any consideration myself as to
4 whether it was cost-prohibitive. I only reported
5 the cost. 10:07:42

6 BY MR. SCHMIDT:

7 Q When you reported the cost, did you think
8 it was high?

9 MR. KIM: Objection. Form.

10 THE WITNESS: I don't have a strong gauge 10:07:52
11 for what I consider high. I thought it was in line
12 with this type of work.

13 BY MR. SCHMIDT:

14 Q What was the cost for the redesigned [REDACTED]
15 [REDACTED] 10:08:06

16 A I don't remember.

17 Q Did Uber conclude that the redesigned [REDACTED]
18 [REDACTED] would result in performance degradation for the
19 overall Fuji device?

20 MR. KIM: Objection. Form. 10:08:21

21 THE WITNESS: Not answering for Uber but
22 only for myself, I made no consideration for
23 potential performance change because we didn't have
24 specific design change parameters other than basic
25 functionality. 10:08:36

Page 439

1 I would have expected a redesigned [REDACTED] 10:08:38
2 [REDACTED] to function more or less similarly to the [REDACTED]
3 [REDACTED] we currently have.

4 BY MR. SCHMIDT:

5 Q Have you done any analysis to prove that 10:08:48
6 conclusion out?

7 A No.

8 Q Do you plan to do any such analysis?

9 MR. KIM: I'll just caution you not to
10 reveal the substance of any attorney-client 10:09:03
11 privileged communications.

12 THE WITNESS: I don't have any current
13 plans to do such an analysis.

14 BY MR. SCHMIDT:

15 Q [REDACTED] 10:09:14

16 [REDACTED]

17 [REDACTED]

18 MR. KIM: Objection. Form.

19 THE WITNESS: [REDACTED]

20 [REDACTED] 10:09:28

21 [REDACTED]

22 BY MR. SCHMIDT:

23 Q [REDACTED]

24 MR. KIM: And again, I'll caution you not
25 to reveal the substance of any attorney-client 10:09:46

Page 440

1 privileged communications. 10:09:49

2 THE WITNESS: [REDACTED]

3 [REDACTED]

4 [REDACTED]

5 [REDACTED] [REDACTED]

6 [REDACTED] [REDACTED]

7 [REDACTED]

8 BY MR. SCHMIDT:

9 Q [REDACTED]

10 [REDACTED] 10:10:25

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 MR. KIM: Same caution.

15 THE WITNESS: [REDACTED] 10:10:40

16 [REDACTED]

17 [REDACTED]

18 BY MR. SCHMIDT:

19 Q [REDACTED]

20 [REDACTED] 10:10:57

21 [REDACTED]

22 [REDACTED]?

23 MR. KIM: Objection. Form. I'll caution

24 the witness not to reveal any attorney-client

25 privileged communication. 10:11:12

Page 441

1 THE WITNESS: Yes. Yes. 10:11:13

2 BY MR. SCHMIDT:

3 Q You mentioned that there was a long lead

4 time for the redesigned [REDACTED] What was the lead

5 time? 10:11:28

6 A I don't recall. It's available in

7 documents, but I don't recall the time.

8 Q Was it a matter of months?

9 A It may have been on the order of a month,

10 but I don't remember. 10:11:45

11 Q And why would a lead time of a month be

12 problematic for Uber?

13 MR. KIM: Objection. Form.

14 THE WITNESS: It wouldn't necessarily be a

15 problem for Uber. I thought it might be a good 10:11:59

16 thing to get ahead of.

17 BY MR. SCHMIDT:

18 Q What impact would losing a month of

19 development have on the overall Fuji program?

20 MR. KIM: Objection. Form. 10:12:14

21 THE WITNESS: About a month.

22 BY MR. SCHMIDT:

23 Q What impact would it have for Uber's

24 overall product development plan?

25 MR. KIM: Objection. Form. 10:12:33

Page 442

1 THE WITNESS: What product development 10:12:34
2 plan do you refer to?
3 BY MR. SCHMIDT:
4 Q The plan to use sensors for self-driving
5 cars. 10:12:46
6 MR. KIM: Objection. Form.
7 THE WITNESS: Its impact on the
8 development of a sensor would be about a month. Its
9 impact on the self-driving car, I can't answer.
10 BY MR. SCHMIDT: 10:13:00
11 Q Are you aware of any testing programs or
12 initiatives that would be adversely affected by a
13 month schedule slip?
14 MR. KIM: Objection. Form.
15 THE WITNESS: [REDACTED] 10:13:17
16 [REDACTED]
17 [REDACTED] t
18 [REDACTED]
19 [REDACTED]
20 Q Is it your understanding that time is of 10:13:29
21 the essence for Uber's development of the Fuji
22 sensor?
23 MR. KIM: Objection. Form.
24 THE WITNESS: I don't know.
25 /// 10:13:36

Page 443

1 and is attached hereto.) 16:37:01

2 BY MR. SCHMIDT:

3 Q Sir, I've placed before you the next
4 exhibit in order, Exhibit 580.

5 Do you recognize this document? 16:37:23

6 A Yes.

7 Q What is this document?

8 A This is an e-mail chain that I started
9 with Will Treichler to investigate what it would
10 take to make a certain set of design changes to the 16:37:40
11 Fuji LiDAR sensor.

12 (Question not answered per instruction of counsel):

13 Q And why did you ask these questions of
14 Will at this time?

15 MR. KIM: I'll just caution you not to 16:37:58
16 reveal any attorney-client privileged
17 communications.

18 THE WITNESS: I don't think I can answer
19 that without referring to an attorney-client
20 privileged communication. 16:38:13

21 BY MR. SCHMIDT:

22 Q Can you characterize the design change
23 that you were asking Will to estimate the time
24 needed to accomplish?

25 A Yes. I was asking Will to evaluate the 16:38:30

Page 662

1 time to change two different design aspects. 16:38:35

2 The first was to modify the outline of the

3 PCB so that [REDACTED]

4 [REDACTED]

5 [REDACTED] 16:38:54

6 The second would be to make some arbitrary

7 unspecified change to [REDACTED]

8 [REDACTED], as well as the [REDACTED]

9 [REDACTED]

10 (Question not answered per instruction of counsel): 16:39:17

11 Q And are you able to tell me what your

12 understanding is as to why this design change was

13 being made?

14 MR. KIM: Objection. Form.

15 And again, I caution you not to reveal any 16:39:37

16 attorney-client privileged communications.

17 THE WITNESS: I cannot, without violating

18 attorney-client privileged conversation, reveal why.

19 But I do want to clarify that not necessarily all of

20 these changes were, in fact, being made. 16:39:55

21 BY MR. SCHMIDT:

22 Q Which of these changes that are being

23 referenced in this document were not made?

24 A Design Change No. 2 was not made.

25 Q And was there a reason why Design Change 16:40:10

Page 663

1 No. 2 was not made? 16:40:13

2 MR. KIM: Same caution.

3 THE WITNESS: I can simply say that I lack

4 a reason to make that change.

5 BY MR. SCHMIDT: 16:40:24

6 Q What do you mean when you say you lack a

7 reason to make that change?

8 A I have no reason to change [REDACTED]

9 [REDACTED]

10 [REDACTED]. 16:40:40

11 (Question not answered per instruction of counsel):

12 Q Well, then why were you asking this

13 question?

14 MR. KIM: Same caution.

15 THE WITNESS: I can't answer that without 16:40:57

16 violating attorney-client privilege.

17 BY MR. SCHMIDT:

18 Q How did the information that Will provided

19 you inform your decision as to whether or not to

20 make these changes? 16:41:11

21 A I will say that the information Will

22 provided did not significantly inform my decision

23 whether or not to make these changes.

24 Q And why is that?

25 A Well, in the second aspect, if I had no 16:41:37

Page 664

1 reason to make the change, the time it takes to make 16:41:39
2 the change would have been irrelevant.

3 In the case of first change, if I had in
4 mind to already make the change, his estimation did
5 not bear any change to that decision. 16:41:53

6 Q Did you have in mind to already make this
7 change at the time you were e-mailing Will on
8 July 19, 2017?

9 A Yes. Regarding the first change, I did.

10 Q And you can't tell me why it was you were 16:42:08
11 making that change?

12 A I cannot tell you why I was asking Will
13 for the duration, but I can talk to why I was
14 intending to make the first change.

15 Q Why were you intending to make the first 16:42:25
16 change?

17 A Earlier in my depositions for this case, I
18 had been asked about this [REDACTED] so I was aware
19 that there was some point of contention about this

20 [REDACTED] 16:42:38

21 I suspected that this [REDACTED] was not
22 necessary. I found out confirmation that this
23 change could be made, that the [REDACTED] was not
24 necessary, and so I deemed it best to bring the
25 board [REDACTED] 16:42:59

1 because there would be no negative impact and only 16:43:01
2 potential improvement.

3 Q What improvement is there by bringing the
4 [REDACTED]?

5 A It has the potential for [REDACTED] 16:43:12
6 [REDACTED].

7 Q Are there any disadvantages that you can
8 think of by bringing the [REDACTED]
9 [REDACTED]

10 A As long as we can maintain the same 16:43:33
11 quality of boards that we receive and our placement,
12 I see no disadvantage.

13 Q What about [REDACTED]
14 [REDACTED] in the
15 first place? Does that remain an issue? 16:43:51

16 A What I found out was that [REDACTED]
17 [REDACTED]
18 [REDACTED]
19 [REDACTED]

20 Q [REDACTED] 16:44:16
21 [REDACTED]
22 [REDACTED] with that design approach?

23 MR. KIM: Objection. Form.

24 THE WITNESS: I see [REDACTED]
25 [REDACTED], provided we continue to receive laser 16:44:32

1 boards to the quality that we've been receiving. 16:44:35

2 I suppose you could say there could be an
3 issue if somehow the quality of our laser printed
4 circuit boards were to degrade possibly through a
5 different vendor or some other change. 16:44:47

6 BY MR. SCHMIDT:

7 Q What's the [REDACTED] with respect
8 to the laser boards that you're receiving from your
9 vendor today?

10 A I have a report on that. I don't know if 16:45:01
11 it was produced, and I'm having trouble remembering.
12 It's [REDACTED]

13 [REDACTED]

14 Q Okay. So once you bring the [REDACTED]
15 [REDACTED] -- strike that. 16:45:16

16 Once you request a PCB board that's
17 intended to have its [REDACTED]
18 [REDACTED], you would agree that [REDACTED]

19 [REDACTED]

20 [REDACTED] 16:45:34
21 correct?

22 MR. KIM: Objection. Form.

23 THE WITNESS: Yes, that is my expectation,
24 that even -- let me make that more clear.

25 Any time we spec a design where [REDACTED] 16:45:48

Page 667

1

[REDACTED]

16:45:51

2

[REDACTED]

3

[REDACTED]

4

And in the case of this PCB, if my

5

recollection serves correctly, I think it might be

16:46:05

6

[REDACTED]

7

BY MR. SCHMIDT:

8

Q And what would the effect on performance

9

be if, [REDACTED]

10

[REDACTED]

16:46:20

11

[REDACTED]

12

MR. KIM: Objection. Form.

13

THE WITNESS: I'm not aware or

14

anticipating any -- what did you say -- design or

15

performance degradation if the laser diode were to

16:46:34

16

[REDACTED]

17

BY MR. SCHMIDT:

18

Q Have you implemented this change?

19

A This change has begun implementation but

20

is still in process. It's not complete.

16:46:54

21

Q When will you know whether or not the

22

implementation of this change has resulted in a

23

degradation of performance with respect to those

24

diodes that [REDACTED]

25

[REDACTED]

16:47:11

1 A I don't know when. I would expect 16:47:14
2 sometime perhaps later this month. We might know as
3 early as then.

4 But again, I want to say that from the
5 measurements we've taken, I do not anticipate a 16:47:27
6 degradation or a problem from that.

7 Q But as an engineer, you know that you
8 can't draw any conclusions regarding a potential
9 degradation in performance until you actually test
10 the design as implemented, correct? 16:47:42

11 MR. KIM: Objection. Form.

12 THE WITNESS: I'm not -- no, I'm going to
13 disagree with that and suggest that the prior data
14 we took that informed [REDACTED] we were
15 achieving on this board should still be applicable 16:48:00
16 to [REDACTED] we should achieve on the new
17 boards.

18 Of course, we have to do an actual test
19 for gross errors and problems. Perhaps it wasn't
20 implemented correctly. But it's fair to have a high 16:48:13
21 level of confidence that there will not be a
22 problem.

23 BY MR. SCHMIDT:

24 Q To be clear, I wasn't asking about the

25 [REDACTED] I was asking about the effect of a 16:48:24

1 diode [REDACTED] 16:48:29

2 You understand the distinction that I'm

3 making?

4 A I understand the distinction you're

5 making. 16:48:43

6 It's fair to say this should be tested to

7 have complete certainty that it's not going to cause

8 a degradation. But if you account for [REDACTED]

9 [REDACTED]

10 [REDACTED], it's pretty 16:49:01

11 unlikely that something else would be causing a

12 degradation.

13 Q But it's something that you would want to

14 test before stating anything definitive under oath,

15 correct? 16:49:16

16 MR. KIM: Objection. Form.

17 THE WITNESS: Yes.

18 BY MR. SCHMIDT:

19 Q And just as the diodes may [REDACTED]

20 [REDACTED], you would 16:49:29

21 agree that it's possible that the diodes will

22 [REDACTED] even after this change

23 is implemented, correct?

24 A Correct. And that's assuming I have the

25 [REDACTED] number correct. But whatever it 16:49:46

Page 670

1 THE WITNESS: When I did the breakdown, I 17:29:45
2 made the assumption that the necessary employee
3 would be available and not constrained by any other
4 projects.

5 I did my best to consider what job 17:29:58
6 functions could be done in parallel with each other
7 so that the calendar time would reflect a more
8 accurate representation of an organization that was
9 working efficiently, but that salary time took
10 employee time and continued to add them together. 17:30:21

11 BY MR. SCHMIDT:

12 Q And I just want to make clear, and make
13 sure that you understand, that when I'm asking these
14 methodology questions, I'm not limiting it to one
15 particular feature. So these questions should be 17:30:35
16 global across your entire analysis.

17 Do you understand?

18 MR. KIM: Objection. Form.

19 THE WITNESS: I believe I understand. I
20 took the same assumptions and method, to the best of 17:30:45
21 my ability, for all the analyses I did for the
22 various redesign considerations.

23 BY MR. SCHMIDT:

24 Q When you were considering redesign, did
25 you assume that the engineers would know exactly 17:31:02

Page 699

1 what they were required to do to accomplish the 17:31:07
2 redesigned system?

3 MR. KIM: Objection. Form.

4 THE WITNESS: I assumed the engineers
5 would have enough direction to make a straight path 17:31:18
6 design.

7 BY MR. SCHMIDT:

8 Q You did --

9 A I did not include any potential -- what
10 shall we say -- research and development or 17:31:31
11 investigation.

12 Q And you also did not include any trial and
13 error time?

14 MR. KIM: Objection. Form.

15 THE WITNESS: I believe I did not include 17:31:46
16 multiple iterations in the design time, to my
17 recollection.

18 BY MR. SCHMIDT:

19 Q And when you were considering hardware
20 costs, did you consider the cost associated with any 17:31:57
21 new tooling that would be required as applicable on
22 a feature-by-feature basis?

23 MR. KIM: Objection. Form.

24 THE WITNESS: Yes, I recall specifically
25 for [REDACTED] analysis, I included a price quotation 17:32:18

Page 700

1 for new tooling to [REDACTED]. 17:32:23

2 BY MR. SCHMIDT:

3 Q When you took into account hardware costs,
4 did you take into -- strike that.

5 When you accounted for hardware costs, did 17:32:38
6 you do so on a unit-by-unit basis?

7 A I don't understand the question.

8 Q When you estimated hardware costs, did you
9 assume a single cost for retrofitting every sensor
10 that Uber has previously built, or were you just 17:32:55
11 providing the hardware costs for a single unit?

12 A I understand.

13 When I did the analysis for the various
14 redesign projects, I considered the hardware cost
15 for changing at least ten LiDAR sensors, which would 17:33:15
16 cover all current prototype requirements.

17 Q And that hardware cost factor was applied
18 for every design feature that you considered to be
19 changed?

20 A Yes, except in the case of an [REDACTED] I 17:33:41
21 believe I may have considered a higher volume that
22 would be consistent with a minimum order quantity
23 for [REDACTED]

24 And the analysis of the hardware cost to
25 retrofit ten systems, again, did not consider 17:34:00

Page 701

1 multiple design iterations. 17:34:05

2 Q For each of these changes to features that
3 you considered, did you consider the time and
4 hardware costs associated with correcting other
5 features to account for performance degradations? 17:34:34

6 MR. KIM: Objection. Form.

7 THE WITNESS: I don't know what other
8 performance degradations you would refer to, so I
9 don't know that I did any such analysis.

10 BY MR. SCHMIDT: 17:34:50

11 Q For example, we discussed a degradation to
12 performance that would result from changing the

13 [REDACTED]

14 [REDACTED]

15 Do you recall that? 17:35:07

16 A Yes.

17 Q And when you provided the number of days
18 and hardware costs associated with that change, did
19 you include in your analysis the cost of addressing
20 those performance degradations? 17:35:29

21 A No. Specifically with that design change,
22 I made the assumption in my analysis that the group
23 collimation lens for each optical cavity would
24 continue to function adequately, or in other words,
25 that the degradation would have been acceptable. 17:35:51

Page 702

1 Q But you agree that for that design change 17:35:54
2 specifically, there would be a degradation, correct?

3 A I agree there would be a degradation, but
4 it's entirely unclear to me whether the degradation
5 would be acceptable or not. 17:36:04

6 Q And that degradation -- strike that.

7 The cost or potential cost of that
8 degradation is not reflected in the information you
9 provided as part of this analysis, correct?

10 A To be clear, the cost of correcting such a 17:36:23
11 degradation was not accounted for in my cost
12 analysis of the hardware change for that design
13 feature.

14 Q And also, you made no effort to capture a
15 performance loss in terms of time or money, correct? 17:36:42

16 A Correct. Likewise, when I did the
17 calendar time or salary time estimates for that
18 design change, I did not consider the schedule
19 changes based on accommodating or correcting for
20 such a degradation in performance. 17:37:05

21 Q With respect to the changes you considered
22 in regards to [REDACTED]
23 [REDACTED]
24 [REDACTED] -- well, strike that.

25 You did provide information regarding a 17:37:30

1 design-around relating to [REDACTED] 17:37:35
2 [REDACTED]
3 [REDACTED] correct?
4 A Correct.
5 Q And when you did that analysis, did you 17:37:47
6 consider any potential performance degradations in
7 the system as a result of the design-around?
8 A No.
9 Q Do you believe that this potential
10 design-around would result in performance 17:38:03
11 degradation?
12 A I don't believe it will. And I would
13 suggest if it did, my course of action would not be
14 to make a design change to accommodate it but to
15 make a design iteration to drive out that 17:38:18
16 performance degradation to an acceptable degree.
17 Q What are you basing your testimony that
18 you do not believe that this design-around -- strike
19 that.
20 What is the basis for you testifying that 17:38:33
21 this design-around would not result in a performance
22 degradation?
23 A My basis for this is knowing that our
24 study of the current laser boards, as it regarded
25 our earlier discussion of [REDACTED] 17:38:52

Page 704

1 [REDACTED] [REDACTED]
2 [REDACTED]
3 [REDACTED] I don't recall the exact value.
4 But given that I could expect [REDACTED]
5 [REDACTED] 17:39:11
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 [REDACTED] 17:39:31
11 [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 [REDACTED]
15 [REDACTED] 17:39:54
16 [REDACTED]
17 [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 Q [REDACTED] 17:40:11
21 [REDACTED]
22 [REDACTED]
23 [REDACTED]
24 [REDACTED] that would result from this design-around?
25 MR. KIM: Objection. Form. 17:40:37

1 THE WITNESS: No. Gaetan and I, I think, 17:40:45
2 both agree that it's somewhere beginning from a
3 [REDACTED], simply based on
4 the sizes of the features.

5 But, in fact, [REDACTED] 17:41:01
6 [REDACTED]. I don't know whether Gaetan
7 did any more detailed analysis to find out what the
8 actual requirement would be.

9 And yet sitting here today, as an
10 engineer, I would be comfortable recommending a 17:41:19
11 change given the wide difference between a starting
12 point of [REDACTED]

13 [REDACTED]

14 BY MR. SCHMIDT:

15 Q But to be clear, you haven't done any 17:41:32
16 analysis to prove out [REDACTED],
17 correct?

18 A I haven't, and I'm not aware whether
19 Gaetan has.

20 Q In regards to designing around the 17:41:55
21 [REDACTED] did you do an analysis
22 regarding the time and schedule required to revert
23 to the [REDACTED] developed by Scott
24 Boehmke for the customized Velodyne dual-stack LiDAR
25 sensor? 17:42:13

Page 706